

**UNITED STATES DISTRICT COURT  
MIDDLE DISTRICT OF NORTH CAROLINA**

CITY OF GRAHAM,

Plaintiff,

vs.

THE 3M COMPANY, f/k/a Minnesota Mining  
and Manufacturing Co., AGC, INC., f/k/a as  
Asahi Glass Co.,  
AGC CHEMICALS AMERICAS, INC.,  
AMEREX CORPORATION,  
ARKEMA INC.,  
BASF CORPORATION, individually and as  
successor in interest to Ciba Inc.,  
CARRIER GLOBAL CORPORATION,  
CHEMDESIGN PRODUCTS INC.,  
CHEMGUARD, INC.,  
CHEMICALS, INC.,  
THE CHEMOURS COMPANY, individually  
and as successor in interest to DuPont  
Chemical Solutions Enterprise,  
THE CHEMOURS COMPANY FC, LLC,  
individually and as successor in interest to  
DuPont Chemical Solutions Enterprise,  
CORTEVA, INC., individually and as  
successor in interest to DuPont Chemical  
Solutions Enterprise,  
DEEPWATER CHEMICALS, INC.,  
DUPONT DE NEMOURS, INC., individually  
and as successor in interest to DuPont  
Chemical Solutions Enterprise,  
DYNAX CORPORATION,  
E. I. DU PONT DE NEMOURS AND  
COMPANY, individually and as successor in  
interest to DuPont Chemical Solutions  
Enterprise,  
TYCO FIRE PRODUCTS, LP, individually  
and as successor in interest to The Ansul  
Company, and  
JOHN DOE DEFENDANTS 1-20,

Defendants.

Civil Action No. \_\_\_\_\_

COMPLAINT AND DEMAND FOR JURY  
TRIAL

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Plaintiff, CITY OF GRAHAM (“Plaintiff”), individually, by and through its undersigned counsel, hereby files this Complaint against Defendants, THE 3M COMPANY, f/k/a Minnesota Mining and Manufacturing Co., AGC, INC., f/k/a Asahi Glass Co., AGC CHEMICALS AMERICAS, INC., AMEREX CORPORATION, ARKEMA INC., BASF CORPORATION, individually and as successor in interest to Ciba Inc., CARRIER GLOBAL CORPORATION, CHEMDESIGN PRODUCTS INC., CHEMGUARD, INC., CHEMICALS, INC., THE CHEMOURS COMPANY, individually and as successor in interest to DuPont Chemical Solutions Enterprise, THE CHEMOURS COMPANY FC, LLC, individually and as successor in interest to DuPont Chemical Solutions Enterprise, CORTEVA, INC., individually and as successor in interest to DuPont Chemical Solutions Enterprise, DEEPWATER CHEMICALS, INC., DUPONT DE NEMOURS, INC., individually and as successor in interest to DuPont Chemical Solutions Enterprise, DYNAX CORPORATION, E. I. DU PONT DE NEMOURS AND COMPANY, individually and as successor in interest to DuPont Chemical Solutions Enterprise, TYCO FIRE PRODUCTS, LP, individually and as successor in interest to The Ansul Company, and JOHN DOE DEFENDANTS 1-20, fictitious names whose present identities are unknown (collectively, “Defendants”) and alleges, upon information and belief, as follows:

## **I. INTRODUCTION**

1. This action arises from the foreseeable contamination of drinking water by the use of aqueous film-forming foam (“AFFF”) products that contained per- and polyfluoroalkyl substances (“PFAS”), including perfluorooctane sulfonate (“PFOS”) and perfluorooctanoic acid (“PFOA”).

2. PFOS and PFOA are fluorosurfactants that repel oil, grease, and water. PFOS, PFOA, and/or their chemical precursors, are or were components of AFFF products, which are firefighting suppressant agents used in training and firefighting activities for fighting Class B fires.

Class B fires include fires involving hydrocarbon fuels such as petroleum or other flammable liquids.

3. PFOS and PFOA are mobile, persist for many years, if not indefinitely in the environment, bioaccumulate in individual organisms and humans, and biomagnify up the food chain. In other words, they are “forever chemicals.”

4. PFOS and PFOA are also associated with multiple and significant adverse health effects in humans, including, but not limited to, kidney cancer, testicular cancer, high cholesterol, thyroid disease, ulcerative colitis, and pregnancy-induced hypertension.

5. At various times from the 1960s through today, Defendants designed, manufactured, marketed, distributed, and/or sold: (a) AFFF products containing PFOS, PFOA, and/or their chemical precursors; (b) fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF; and/or (c) perfluorinated chemicals (“PFCs”) containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF (collectively, “AFFF/Component Products”).

6. Defendants designed, manufactured, marketed, distributed, and/or sold AFFF/Component Products despite knowing that PFAS are toxic, persist for many years, if not indefinitely, and would be routinely released into the environment during fire protection, training, and response activities, even when used as directed and intended by Defendants.

7. Since its creation in the 1960s, AFFF designed, manufactured, marketed, distributed, and/or sold by Defendants, and/or that contained fluorosurfactants and/or PFCs designed, manufactured, marketed, distributed, and/or sold by Defendants, have been released into the environment during fire protection, training, and response activities, resulting in widespread PFAS contamination.

8. Plaintiff operates a public water system (“PWS”), which provides drinking water services to residents of Graham, Mebane, Green Level, and Swepsonville, North Carolina.

9. For purposes of this Complaint, Plaintiff is defined as a PWS that provides drinking water services and has had its (a) surface and/or groundwater supplies, (b) finished drinking water, and/or (c) treatment plant residuals contaminated by PFAS.

10. Defendants’ AFFF/Component Products containing PFOA and PFOS in unchanged form were discharged into the environment, thus contaminating the surface and/or groundwater supply from which Plaintiff draws water to provide public drinking water. Such PFAS chemicals contaminated Plaintiff’s surface and/or groundwater supplies and the residuals from the treatment of such contaminated water supplies.

11. On information and belief, the contamination is a direct and proximate result of Defendants’ AFFF/Component Products, which resulted in the foreseeable migration of PFAS into Plaintiff’s surface and/or groundwater supplies as well as treatment plant residuals.

12. In order to ensure that they can process surface and/or groundwater in a manner that complies with regulatory requirements, Plaintiff has taken and will have to continue to take action to: (a) minimize the presence of PFAS chemicals in their surface and/or groundwater supplies and treatment plant residuals, and (b) address and minimize the contamination of their surface and/or groundwater supplies and treatment plant residuals caused by Defendants.

13. As such, Plaintiff has incurred damages and faces the imminent, certainly impending, and substantially heightened risk of harm related to future expenses in the investigation, testing, sampling, monitoring, assessing, reducing, and reporting of PFAS (contained in Defendants’ AFFF/Component Products) that have contaminated Plaintiff’s surface

and/or groundwater supplies and treatment plant residuals, finished drinking water and treatment plant residuals.

14. Moreover, Plaintiff is now facing or will face the imminent, certainly impending, and substantially heightened risk of harm of future expenses related to the design, construction, modification, operation, and maintenance of systems to treat and reduce and/or eliminate PFAS (contained in Defendants' AFFF/Component Products) that have contaminated Plaintiff's surface and/or groundwater supplies as well as treatment plant residuals.

15. In addition, Plaintiff is now facing or will face the imminent, certainly impending, and substantially heightened risk of harm related to future expenses for obtaining new water sources due to PFAS contamination from Defendants' AFFF/Component Products.

## **II. JURISDICTION AND VENUE**

16. This Court has subject-matter jurisdiction under 28 U.S.C. §1332(a) because: (a) the amount in controversy exceeds \$75,000, exclusive of interest and costs; and (b) diversity exists because Plaintiff and Defendants are citizens of different states.

17. This Court has personal jurisdiction over each Defendant because they each marketed, distributed, and/or sold AFFF/Component Products, and otherwise conducted extensive business within this District. Upon information and belief, each Defendant is a corporation or other business that has sufficient minimum contacts in North Carolina or otherwise intentionally avails itself of the North Carolina market, so as to render the exercise of jurisdiction over it by this Court consistent with traditional notions of fair play and substantial justice.

18. Proper venue for this matter is in the United States District Court for the Middle District of North Carolina under 28 U.S.C. §1391(b)(2), because a substantial part of the events or omissions giving rise to Plaintiff's claims occurred in this District.

### **III. PARTIES**

#### **A. Plaintiff**

19. Plaintiff brings this action on behalf of itself as a PWS that has detectable amounts of PFOA and/or PFOS from AFFF/Component Products.

20. Plaintiff is a public utility with its principal place of business located in Graham, North Carolina 27253. It provides water services to the Cities of Graham and Mebane, and the Towns of Green Level and Swepsonville.

21. Plaintiff services 6,313 metered connections, and has an average daily flow of 2.1 MGD.

22. Plaintiff sources its raw water from the Back-Creek Reservoir, and treats its water with coagulation, flocculation, sedimentation, filtration, and disinfection.

23. In 2019, Plaintiff voluntarily began conducting PFAS lab testing of its raw water supplies. The most recent testing in 2023 shows Plaintiff's raw water to contain PFOA of 7.6 parts per trillion ("ppt") and PFOS of 7.4 ppt.

#### **B. Defendants**

##### **1. The AFFF Defendants**

24. The term "AFFF Defendants" refers collectively to Defendants The 3M Company, Amerex Corporation, Carrier Global Corporation, Chemguard, Inc., and Tyco Fire Products, LP.

25. Defendant The 3M Company f/k/a Minnesota Mining and Manufacturing Co. ("3M") is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business located at 3M Center, Saint Paul, Minnesota 55144-1000.

26. Beginning before 1970 and until at least 2002, 3M designed, manufactured, marketed, distributed, and sold AFFF/Component Products containing PFAS, including, but not limited to, PFOA and PFOS.



27. Defendant Amerex Corporation (“Amerex”) is a corporation organized and existing under the laws of the State of Alabama, with its principal place of business located at 7595 Gadsden Highway, Trussville, Alabama 35173.

28. Amerex is a manufacturer of firefighting products. Beginning in 1971, it was a manufacturer of hand portable and wheeled extinguishers for commercial and industrial applications.

29. In 2011, Amerex acquired Solberg Scandinavian AS, one of the largest manufacturers of AFFF products in Europe.

30. On information and belief, beginning in 2011, Amerex designed, manufactured, marketed, distributed, and sold AFFF/Component Products containing PFAS, including, but not limited to, PFOA and PFOS.

31. Defendant Tyco Fire Products, LP (“Tyco”) is a limited partnership organized under the laws of the State of Delaware, with its principal place of business located at One Stanton Street, Marinette, Wisconsin 54143-2542.

32. Tyco is the successor in interest of The Ansul Company (“Ansul”), having acquired Ansul in 1990.

33. Beginning in or around 1975, Ansul designed, manufactured, marketed, distributed, and sold AFFF/Component Products containing PFAS, including, but not limited to, PFOA and PFOS.

34. After Tyco acquired Ansul in 1990, Tyco/Ansul continued to design, manufacture, market, distribute, and sell AFFF/Component Products containing PFAS, including, but not limited to, PFOA and PFOS.

35. Defendant Chemguard, Inc. (“Chemguard”) is a corporation organized under the laws of the State of Texas, with its principal place of business located at One Stanton Street, Marinette, Wisconsin 54143.

36. On information and belief, Chemguard designed, manufactured, marketed, distributed, and sold AFFF/Component Products containing PFAS, including, but not limited to, PFOA and PFOS.

37. On information and belief, Chemguard was acquired by Tyco International Ltd. in 2011.

38. On information and belief, Angus Fire Armour Corporation (“Angus Fire”) had previously been acquired by Williams in 1994.

39. On information and belief, Williams was demerged into Chubb and Kidde plc in or around 2000.

40. On information and belief, when Williams was demerged, Kidde plc became the successor in interest to National Foam System, Inc. and Angus Fire.

41. On information and belief, Kidde plc was acquired by United Technologies Corporation (“United Technologies”) in or around 2005.

42. On information and belief, Angus Fire and National Foam separated from United Technologies in or around 2013.

43. On information and belief, Kidde-Fenwal, Inc. (“Kidde-Fenwal”) was an operating subsidiary of Kidde plc and manufactured AFFF/Component Products following Kidde plc’s acquisition by United Technologies.

44. On information and belief, Kidde-Fenwal is the entity that divested the AFFF business unit now operated by National Foam in 2013.

45. Defendant Carrier Global Corporation (“Carrier”) is a corporation organized under the laws of the State of Delaware, with its principal place of business at 13995 Pasteur Boulevard, Palm Beach Gardens, Florida 33418.

46. On information and belief, Carrier was formed in March 2020 when United Technologies spun off its fire and security businesses, before it merged with Raytheon Company in April 2020.

47. On information and belief, Kidde-Fenwal became a subsidiary of Carrier when United Technologies spun off its fire and security business in March 2020.

48. On information and belief, the AFFF Defendants designed, manufactured, marketed, distributed, and sold AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors, that were stored, handled, used, tested, otherwise discharged, and/or disposed of by Plaintiff.

## **2. The Fluorosurfactant Defendants**

49. The term “Fluorosurfactant Defendants” refers collectively to Defendants 3M, Arkema Inc., BASF Corporation, ChemDesign Products Inc., Chemguard, Inc., Deepwater Chemicals, Inc., E. I. du Pont de Nemours and Company, The Chemours Company, The Chemours Company FC, LLC, DuPont de Nemours, Inc., Corteva, Inc., and Dynax Corporation.

50. Defendant Arkema Inc. (“Arkema”) is a corporation organized and existing under the laws of Pennsylvania, with its principal place of business at 900 First Avenue, King of Prussia, Pennsylvania 19406.

51. Arkema develops specialty chemicals and polymers.

52. Arkema is an operating subsidiary of Arkema France, S.A.

53. On information and belief, Arkema designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products.

54. Defendant BASF Corporation (“BASF”) is a corporation organized under the laws of the State of Delaware, with its principal place of business located at 100 Park Avenue, Florham Park, New Jersey 07932.

55. On information and belief, BASF is the successor-in-interest to Ciba Inc. (f/k/a Ciba Specialty Chemicals Corporation).

56. On information and belief, Ciba Inc. designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products.

57. Defendant ChemDesign Products Inc. (“ChemDesign”) is a corporation organized under the laws of Delaware, with its principal place of business located at 2 Stanton Street, Marinette, Wisconsin 54143.

58. On information and belief, 3M and ChemDesign designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products.

59. Defendant Deepwater Chemicals, Inc. (“Deepwater”) is a corporation organized under the laws of Delaware, with its principal place of business located at 196122 E. County Road 40, Woodward, Oklahoma 73801.

60. On information and belief, Deepwater designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products.

61. Defendant Dynax Corporation (“Dynax”) is a corporation organized under the laws of the State of Delaware, with its principal place of business located at 103 Fairview Park Drive, Elmsford, New York 10523.

62. On information and belief, Dynax entered into the AFFF market on or about 1991 and quickly became a leading global producer of fluorosurfactants and fluorochemical stabilizers containing PFOS, PFOA, and/or their chemical precursors.

63. On information and belief, Dynax designed, manufactured, marketed, distributed, and sold fluorosurfactants and fluorochemical stabilizers containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products.

64. Defendant E. I. du Pont de Nemours and Company (“E. I. du Pont”) is a corporation organized under the laws of the State of Delaware, with its principal place of business located at 974 Centre Road, Wilmington, Delaware 19805.

65. Defendant The Chemours Company (“Chemours Co.”) is a limited liability company organized under the laws of the State of Delaware, with its principal place of business located at 1007 Market Street, P.O. Box 2047, Wilmington, Delaware 19899.

66. In 2015, E. I. du Pont spun off its performance chemicals business to Chemours Co., along with vast environmental liabilities which Chemours Co. assumed, including those related to PFOS, PFOA, and fluorosurfactants. On information and belief, Chemours Co. has supplied fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors to manufacturers of AFFF/Component Products.

67. On information and belief, Chemours Co. was incorporated as a subsidiary of E. I. du Pont as of April 30, 2015. From that time until July 2015, Chemours Co. was a wholly owned subsidiary of E. I. du Pont.

68. In July 2015, E. I. du Pont spun off Chemours Co. and transferred to Chemours Co. its “performance chemicals” business line, which includes its fluoroproducts business, distributing shares of Chemours Co. stock to E. I. du Pont stockholders, and Chemours Co. has since been an independent, publicly traded company.

69. Defendant The Chemours Company FC, LLC (“Chemours FC”) is a limited liability company organized under the laws of the State of Delaware, with its principal place of business located at 1007 Market Street, Wilmington, Delaware 19899.

70. Defendant Corteva, Inc. (“Corteva”) is a corporation organized and existing under the laws of Delaware, with its principal place of business at 974 Centre Road, Wilmington, Delaware 19805.

71. Defendant DuPont de Nemours, Inc. f/k/a DowDuPont, Inc. (“DowDuPont”) is a corporation organized and existing under the laws of Delaware, with its principal places of business at 974 Centre Road, Wilmington, Delaware 19805 and 2211 H.H. Dow Way, Midland, Michigan 48674.

72. On June 1, 2019, DowDuPont separated its agriculture business through the spin-off of Corteva.

73. Corteva was initially formed in February 2018. From that time until June 1, 2019, Corteva was a wholly owned subsidiary of DowDuPont.

74. On June 1, 2019, DowDuPont distributed to DowDuPont stockholders all issued and outstanding shares of Corteva common stock by way of a pro-rata dividend. Following that distribution, Corteva became the direct parent of E. I. du Pont.

75. Corteva holds certain DowDuPont assets and liabilities, including DowDuPont’s agriculture and nutritional businesses.

76. On June 1, 2019, DowDuPont, the surviving entity after the spin-off of Corteva and of another entity known as Dow, Inc., changed its name to DuPont de Nemours, Inc. (“New DuPont”). New DuPont retained assets in the specialty products business lines following the above-described spin-offs, as well as the balance of the financial assets and liabilities of E. I. du Pont not assumed by Corteva.

77. Defendants E. I. du Pont, Chemours Co., Chemours FC, Corteva, and New DuPont are collectively referred to as “DuPont.”

78. On information and belief, DuPont designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products.

79. On information and belief, Chemguard also designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products.

80. On information and belief, the Fluorosurfactant Defendants designed, manufactured, marketed, distributed, and sold fluorosurfactants containing PFOS, PFOA, and/or their chemical precursors for use in AFFF/Component Products, that were stored, handled, used, tested, otherwise discharged, and/or disposed of by Plaintiff.

### **3. The PFC Defendants**

81. The term “PFC Defendants” refers collectively to Defendants 3M, AGC, Inc., AGC Chemicals Americas, Inc., ChemDesign, Chemicals, Inc., Deepwater, E. I. du Pont, Chemours Co., Chemours FC, Corteva, and New DuPont.

82. Defendant AGC, Inc. (“AGC”), f/k/a Asahi Glass Co., is a corporation organized under the laws of Japan that does business throughout the United States and has its principal place of business at 1-5-1, Marunouchi, Chiyoda-ku, Tokyo 100-8405 Japan.

83. On information and belief, AGC was founded more than a hundred years ago and was the first Japanese producer of sheet glass.

84. On information and belief, AGC expanded its operations in the 1960s by developing a fluorochemical business segment that sold products such as the water and oil repellent agents AsahiGuard and fluoropolymer film F-CLEAN.

85. On information and belief, AGC designed, manufactured, marketed, distributed, and sold fluorochemicals containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

86. Defendant AGC Chemicals Americas, Inc. (“AGCCA”) is a corporation organized and existing under the laws of Delaware, having its principal place of business at 55 East Uwchlan Avenue, Suite 201, Exton, Pennsylvania 19341.

87. On information and belief, AGCCA was formed in 2004 and is a subsidiary of AGC.

88. AGCCA manufactures specialty chemicals. It offers glass, electronic displays, and chemical products, including resins, water and oil repellants, greenhouse films, silica additives, and various fluorointermediates.

89. On information and belief, AGCCA designed, manufactured, marketed, distributed, and sold PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF products.

90. Defendant Chemicals, Inc. is a corporation organized and existing under the laws of Texas, with its principal place of business located at 12321 Hatcherville, Baytown, Texas 77520.

91. On information and belief, Chemicals, Inc. supplied PFCs containing PFOS,



PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF/Component Products.

92. On information and belief, 3M, ChemDesign, Deepwater Chemicals, and DuPont also supplied PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF/Component Products.

93. On information and belief, the PFC Defendants supplied PFCs containing PFOS, PFOA, and/or their chemical precursors for use in manufacturing the fluorosurfactants used in AFFF/Component Products that were stored, handled, used, tested, otherwise discharged, and/or disposed of by Plaintiff.

94. Defendants represent all or substantially all of the market for AFFF/Component Products disposed of by Plaintiff.

#### **4. Doe Defendants 1-20**

95. Doe Defendants 1-20 are unidentified entities or persons whose names are presently unknown and whose actions, activities, and omissions: (a) may have permitted, caused, and/or contributed to the contamination of Plaintiff's water sources; (b) may be vicariously responsible for entities or persons who permitted, caused, and/or contributed to the contamination of Plaintiff's water sources; or (c) may be successors in interest to entities or persons who permitted, caused, and/or contributed to the contamination of Plaintiff's water sources. After reasonable search and investigation to ascertain the Doe Defendants' actual names, the Doe Defendants' actual identities are unknown to Plaintiff, as they are not linked with any of the Defendants on any public source.

96. Doe Defendants 1-20, either in their own capacity or through a party they are liable for: (a) designed, manufactured, marketed, distributed, and/or sold AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors, and/or designed, manufactured, marketed, distributed, and/or sold the fluorosurfactants and/or PFCs contained in

AFFF/Component Products; (b) used, handled, transported, stored, discharged, disposed of, designed, manufactured, marketed, distributed, and/or sold PFOS, PFOA, and/or their chemical precursors, or other AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors; or (c) failed to timely perform necessary and reasonable response and remedial measures to releases of PFOS, PFOA, and/or their chemical precursors, or other AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors into the environment in which Plaintiff's water supplies exist.

97. All Defendants, at all times material herein, acted by and through their respective agents, servants, officers, and employees, actual or ostensible, who then and there were acting within the course and scope of their actual or apparent agency, authority, or duties. Defendants are each liable based on such activities, directly and vicariously.

#### **IV. FACTUAL ALLEGATIONS RELEVANT TO ALL CAUSES OF ACTION**

##### **A. PFOA and PFOS Pose Risks to the Environment and Public Health**

98. PFAS are chemical compounds containing fluorine and carbon. These substances have been used for decades in the manufacture of, among other things, household and commercial products that resist heat, stains, oil, and water. These substances are not naturally occurring and must be manufactured.

99. The two most widely studied types of these substances are PFOA and PFOS.

100. PFOA and PFOS have unique properties that cause them to be: (a) mobile and persistent, meaning that they readily spread into the environment where they break down very slowly; (b) bioaccumulative and biomagnifying, meaning that they tend to accumulate in organisms and up the food chain; and (c) toxic, meaning that they pose serious health and environmental risks to humans and animals.

101. PFOA and PFOS easily dissolve in water, and thus they are mobile and easily spread in the environment. PFOA and PFOS also readily contaminate soils and leach from the soil into surface and groundwater, where they can travel significant distances.

102. PFOA and PFOS are characterized by the presence of multiple carbon-fluorine bonds, which are exceptionally strong and stable. As a result, PFOA and PFOS are thermally, chemically, and biologically stable. They resist breakdown or environmental degradation due to light, water, and biological processes, and as such, are persistent when released into the environment.

103. Bioaccumulation occurs when an organism absorbs a substance at a rate faster than the rate at which the substance is lost by metabolism and excretion. Biomagnification occurs when the concentration of a substance in the tissues of organisms increases as the substance travels up the food chain.

104. PFOA and PFOS bioaccumulate/biomagnify in numerous ways. First, they are relatively stable once ingested, so that they bioaccumulate in individual organisms for significant periods of time. Because of this stability, any newly ingested PFOA and PFOS will be added to any PFOA and PFOS already present. In humans, PFOA and PFOS remain in the body for years.

105. PFOA and PFOS biomagnify up the food chain. This occurs, for example, when humans eat fish that have ingested PFOA and/or PFOS.

106. PFOA and PFOS can also enter the drinking water supply from contamination in groundwater and surface water sources for drinking water.

107. Contaminated drinking water or groundwater can also be used to irrigate or wash home-grown foods or farm-grown foods, thereby providing another means for human exposure.

108. PFAS are readily absorbed after consumption or inhalation and accumulate primarily in the bloodstream, kidneys, and liver.

109. Because certain PFAS chemicals are toxic, exposure to them poses serious health risks to humans and animals.

**B. Defendants' Manufacture and Sale of AFFF/Component Products**

110. AFFF is a type of water-based foam that was first developed in the 1960s to extinguish hydrocarbon fuel-based fires.

111. AFFF is a Class-B firefighting foam. It is mixed with water and used to extinguish fires that are difficult to fight, particularly those that involve petroleum or other flammable liquids.

112. AFFF is synthetically formed by combining fluorine-free hydrocarbon foaming agents with fluorosurfactants. When mixed with water, the resulting solution produces an aqueous film that spreads across the surface of hydrocarbon fuel. This film provides fire extinguishment and is the source of the designation AFFF.

113. Beginning in the 1960s, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold AFFF/Component Products that used fluorosurfactants containing either PFOS, PFOA, or the chemical precursors that degrade into PFOS and PFOA.

114. AFFF can be made without the fluorosurfactants that contain PFOA, PFOS, and/or their precursor chemicals. Fluorine-free firefighting foams, for instance, do not release PFOA, PFOS, and/or their precursor chemicals into the environment.

115. The fluorosurfactants used in 3M's AFFF/Component Products were manufactured by 3M's patented process of electrochemical fluorination ("ECF").

116. The fluorosurfactants used in other AFFF/Component Products sold by the AFFF Defendants were manufactured by the Fluorosurfactant Defendants through the process of telomerization.

117. The PFCs the Fluorosurfactant Defendants needed to manufacture those fluorosurfactants contained PFOS, PFOA, and/or their chemical precursors and were designed, manufactured, marketed, distributed, and/or sold by the PFC Defendants.

118. On information and belief, the PFC Defendants and the Fluorosurfactant Defendants were aware that the PFCs and fluorosurfactants they designed, manufactured, marketed, distributed, and/or sold would be used in the AFFF/Component Products designed, manufactured, marketed, distributed, and/or sold by the AFFF Defendants.

119. On information and belief, the PFC Defendants and the Fluorosurfactant Defendants designed, manufactured, marketed, distributed, and/or sold the PFC and/or fluorosurfactants contained in the AFFF/Component Products discharged into the environment of Plaintiff during fire protection, training, and response activities, resulting in widespread PFAS contamination.

120. On information and belief, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold the AFFF/Component Products discharged into the environment during fire protection, training, and response activities, resulting in widespread PFAS contamination to Plaintiff.

**C. Defendants' Knowledge of the Threats to Public Health and the Environment Posed by PFOS and PFOA**

121. On information and belief, by at least the 1970s, 3M and DuPont knew or should have known that PFOA and PFOS are mobile and persistent, bioaccumulative and biomagnifying, and toxic.

122. On information and belief, 3M and DuPont concealed from the public and government agencies their knowledge of the threats to public health and the environment posed by PFOA and PFOS.

123. Some or all of the Defendants understood how stable the fluorinated surfactants used in AFFF/Component Products are when released into the environment, from their first sale to a customer, yet they failed to warn their customers or provide reasonable instruction on how to manage wastes generated from their AFFF/Component Products.

**1. 1940s -1950s: 3M, DuPont, and the Development of a Toxic Chemical Family**

124. The development of this family of chemical compounds began with 3M in the 1940s. At that time, 3M's Central Research Laboratory was working with a scientist at Penn State University, Joseph H. Simons ("Simons"), who had developed and patented a process of preparing fluorine compounds through ECF. In 1945, 3M acquired Simons' ECF patents. It would be another three years before 3M's Central Research developed fluorinated compounds that could be used for commercial applications. During that time, 3M scientists continuously researched and created new fluorochemicals; in the words of one researcher, "[a]most every day we made a new molecule which had never been on the face of the earth before."<sup>1</sup>

125. From the early days of its fluorochemical research, 3M recognized the very characteristics that make PFAS persistent pollutants in the environment today. For example, Simons' 1948 patent for the ECF, which was assigned to 3M, stated that the compounds produced through ECF are non-corrosive, and of little chemical reactivity, and do not react with any of the metals at ordinary temperatures and react only with the more chemically reactive metals such as sodium, at elevated temperatures.<sup>2</sup>

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<sup>1</sup> NEIL MCKAY, A CHEMICAL HISTORY OF 3M: 1933-1990, at 30 (1991), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1365.pdf>.

<sup>2</sup> Fluorination of Organic Compounds, U.S. Patent No. 2,447,717 (issued Aug. 24, 1948), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1005.pdf>.

126. The patent also stated that the fluorochemicals produced by the ECF process do not react with other compounds or reagents due to the blanket of fluorine atoms surrounding the carbon skeleton of the molecule. 3M understood that the stability of the carbon-to-fluorine bonds prevented its fluorosurfactants from undergoing further chemical reactions or degrading under natural processes in the environment.<sup>3</sup>

127. 3M was also aware of the thermal stability of its fluorinated compounds prior to commercial production. Simons' ECF patent states that the compounds produced by the ECF process were thermally stable at temperatures up to 750° C (1,382° F). Additional research by 3M expanded its understanding of the thermal stability of fluorinated compounds.<sup>4</sup>

128. In 1949, 3M built the first manufacturing facility to expand ECF from laboratory research to commercial production and it began to present its fluorochemical research in order to find potential uses and customers for the compounds it was manufacturing.

129. 3M soon found a customer: DuPont. In 1951, DuPont began purchasing a perfluorinated carboxylic acid (perfluorooctanoic acid or PFOA), for use in manufacturing a non-stick coating called Teflon.

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<sup>3</sup> J.H. Simons, *Fluorocarbons and Their Production*, in 1 FLUORINE CHEMISTRY 401, 401-22 (1950), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX3008.pdf>.

<sup>4</sup> T.J. Bryce, *Fluorocarbons - Their Properties and Wartime Development*, in 1 FLUORINE CHEMISTRY 423, 423-62 (1950).

130. Even then, 3M's research had already documented that PFAS accumulate in the blood of mice exposed to the chemicals in laboratory tests.<sup>5</sup> Also, a 1956 study by researchers at Stanford University found that PFAS bind to proteins in human blood.<sup>6</sup>

131. In 1964, a group of DuPont employees working in Teflon manufacturing became sick after their department was moved to a more enclosed workspace.<sup>7</sup> They experienced chills, fever, difficulty breathing, and a tightness in the chest – symptoms referred to variously as “polymer-fume fever,” “Teflon flu,” or simply, “the shakes.” Polymer-fume fever was first reported in medical literature in 1951.

## 2. 1960s: AFFF's Environmental Hazards Come into Focus

132. By at least the end of the 1960s, additional research and testing performed by 3M and DuPont indicated that fluorosurfactants, including at least PFOA, because of their unique chemical structure, were resistant to environmental degradation and would persist in the environment essentially unaltered if allowed to enter the environment.

133. One 3M employee wrote in 1964: “This chemical stability also extends itself to all types of biological processes; *there are no known biological organisms that are able to attack*

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<sup>5</sup> 1950 3M test study results with Perfluorobutyric acid, [https://static.ewg.org/reports/2019/pfa-timeline/1950\\_Mice.pdf?\\_ga=2.21758526.426747500.1673645134-2012946541.1673645134](https://static.ewg.org/reports/2019/pfa-timeline/1950_Mice.pdf?_ga=2.21758526.426747500.1673645134-2012946541.1673645134).

<sup>6</sup> Gordon L. Nordby & J. Murray Luck, *Perfluorooctanoic Acid Interactions with Human Serum Albumin*, 219 J. BIOL. CHEM. 399, 399-404 (1956), [https://static.ewg.org/reports/2019/pfa-timeline/1956\\_Stanford.pdf?\\_ga=2.59569645.1994765108.1678715813-813372143.1678715813](https://static.ewg.org/reports/2019/pfa-timeline/1956_Stanford.pdf?_ga=2.59569645.1994765108.1678715813-813372143.1678715813).

<sup>7</sup> Charles E. Lewis & Gerald R. Kerby, *An Epidemic of Polymer-Fume Fever*, 191 JAMA 375 (1965), [https://jamanetwork.com/journals/jama/article-abstract/654702#:~:text=An%20%22epidemic%22%20of%20polymer,pyrolysis%20of%20polytetrafluoroethylene%20\(Teflon\).](https://jamanetwork.com/journals/jama/article-abstract/654702#:~:text=An%20%22epidemic%22%20of%20polymer,pyrolysis%20of%20polytetrafluoroethylene%20(Teflon).)



*the carbon-fluorine bond in a fluorocarbon.*”<sup>8</sup> Thus, 3M knew by the mid-1960s that its surfactants were immune to chemical and biological degradation in soils and water.

134. 3M also knew by 1964 that fluorocarbon carboxylic acids, when dissolved, dissociated to form highly stable perfluorocarboxylate and perfluorosulfonate ions. Later studies by 3M on the adsorption and mobility of FC-95 (the potassium salt of PFOS) and FC-143 (the ammonium salt of PFOA) in soils indicated very high solubility and very high mobility in soils for both compounds.<sup>9</sup>

135. Also, in a 1965 study sponsored by DuPont where rats were fed a PFAS compound over a ninety-day period the rats had liver damage and showed an increased size in the spleen.

136. Despite early warnings of the toxic, persistent, and bioaccumulative nature of PFOS and PFOA, these chemicals began to be used in a product that would be released in large quantities directly into the environment whenever used: firefighting foam.

137. AFFF was first developed in the 1960s as a result of the U.S. Navy’s research into the use of fluorosurfactants in firefighting foam to extinguish fuel-based shipboard fires.

138. In 1969, the Navy promulgated a military standard or “MilSpec” requiring contractors to use “fluorocarbon surfactants” in firefighting foam products. Since then, the Navy has revised this MilSpec multiple times, but at no time did the Navy specify the specific fluorosurfactants to be used in AFFF. The AFFF MilSpec was a “performance specification,”

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<sup>8</sup> H.G. Bryce, *Industrial and Utilitarian Aspects of Fluorine Chemistry*, in 5 FLUORINE CHEMISTRY 295, 310 (1964), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX3022.pdf> (emphasis added).

<sup>9</sup> Technical Report Summary re: Adsorption of FC 95 and FC143 on Soil, 3M (Feb. 27, 1978), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1158.pdf>.

meaning that the product manufacturers were given great flexibility with respect to designing a product that would meet the military's performance requirements.

139. Firefighting foam can be made without the fluorosurfactants that contain PFOA, PFOS, and/or their precursor chemicals.

140. When the Navy first promulgated the AFFF MilSpec, hundreds of different fluorosurfactants had already been created.

141. Nonetheless, beginning in the 1960s, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold AFFF/Component Products that used fluorosurfactants containing either PFOS, PFOA, or the chemical precursors that degrade into PFOS and PFOA.

142. From the late 1960s to 2002, 3M manufactured and sold AFFF containing PFOS under the brand name "Light Water."

143. Because 3M held the patents on the ECF process, AFFF Defendants utilized PFAS produced through a different process, called fluorotelomerization. These fluorotelomer AFFF formulations were produced beginning in the 1970s. Although they are not made with PFOA, they contain precursors – polyfluorinated compounds that are known to degrade to compounds that include PFOA.

144. On information and belief, the AFFF Defendants designed, manufactured, marketed, distributed, and/or sold the AFFF/Component Products discharged into the environment during fire protection, training, and response activities, resulting in widespread PFAS contamination.

145. The AFFF Defendants treated their foam formulations as proprietary information and did not disclose the specific chemical ingredients of their formulations to government agencies or the public.

146. Some or all of the Defendants understood how stable the fluorinated surfactants used in AFFF are when released into the environment from their first sale to a customer, yet they failed to warn their customers or provide reasonable instruction on how to manage wastes generated from their products.

### **3. 1970s - 1980s: Defendants' Deepening Knowledge of the Risks of PFOA and PFOS**

147. By at least the 1970s, as Defendants expanded the market for AFFF formulations containing PFOA and PFOS, 3M and DuPont knew or should have known that PFOA and PFOS are mobile and persistent, bioaccumulative and biomagnifying, and toxic.

148. An internal memo from 3M in 1971 states that the “thesis that there is ‘no natural sink’ for fluorocarbons obviously demands some attention.”<sup>10</sup> But if 3M did give this issue the attention demanded at this time, it did not share it with the public. In 1975, two independent toxicologists, Dr. William Guy (“Guy”) and Donald Taves (“Taves”), discovered that an unidentified fluorine compound had been found in human blood sampled from different blood banks. Guy contacted 3M to ask if it knew of “possible sources” of the chemicals.<sup>11</sup> 3M’s scientists concluded internally that the fluorine compounds resembled PFOS manufactured by 3M,

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<sup>10</sup> Memorandum from H.G. Bryce to R.M. Adams (Sept. 13, 1971), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1088.pdf>.

<sup>11</sup> Memorandum from G.H. Crawford to L.C. Krogh et al. (Aug. 20, 1975), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1118.pdf>.

but 3M did not share this conclusion with the independent toxicologists or anyone else outside of 3M.

149. 3M did, however, test the blood of its own workers in 1976, finding “up to 1000 times ‘normal’ amounts of organically bound fluorine in their blood.”<sup>12</sup>

150. By the mid-1970s, 3M and Ansul (and likely other Defendants) had an intimate understanding of the persistent nature of PFCs. A 1976 study, for example, observed no biodegradation of FC-95, the potassium salt of PFOS; a result 3M characterized as “unsurprising” in light of the fact that “[b]iodegradation of FC 95 is improbable because it is completely fluorinated.”<sup>13</sup>

151. In 1977, Ansul, the AFFF manufacturer later acquired by Defendant Tyco, authored a report titled, “Environmentally Improved AFFF,” which acknowledged that releasing AFFF into the environment could pose potential negative impacts to water quality.<sup>14</sup> Ansul wrote: “The purpose of this work is to explore the development of experimental AFFF formulations that would exhibit reduced impact on the environment while retaining certain fire suppression characteristics . . . improvements [to AFFF formulations] are desired in the environmental area, *i.e.*, development of compositions that have a reduced impact on the environment without loss of fire suppression effectiveness.” *Id.* Thus, Ansul knew by the mid-1970s that the environmental impact of AFFF needed to be reduced, yet there is no evidence that Ansul (or any other Defendant) ever pursued initiatives to do so.

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<sup>12</sup> 3M Chronology – Fluorochemicals in Blood (Aug. 26, 1977), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1144.pdf>.

<sup>13</sup> TECHNICAL REPORT SUMMARY, 3M (Aug. 12, 1976) [3MA01252037].

<sup>14</sup> ANSUL CO., FINAL REPORT: ENVIRONMENTALLY IMPROVED AFFF, N00173-76-C-0295 (Dec. 13, 1977), <https://apps.dtic.mil/dtic/tr/fulltext/u2/a050508.pdf>.

152. A 1978 3M biodegradation study likewise reported that an “extensive study strongly suggest[ed]” one of its PFAS was “likely to persist in the environment for extended periods unaltered by metabolic attack.”<sup>15</sup> A year later, a 3M study reported that one of its fluorosurfactants “was found to be ‘completely resistant’ to biodegradation under the test conditions,” and that it appeared waterways were the fluorosurfactant’s “environmental ‘sink.’”<sup>16</sup>

153. At the same time, several studies sponsored by 3M showed that the fluorosurfactants used in AFFF were even more toxic than previously believed. A study of subacute toxicity in rhesus monkeys, in which the monkeys were to be given doses of PFOS over 90 days, had to be redesigned and repeated “[b]ecause of unexpected early mortalities in all monkeys at all levels . . . .”<sup>17</sup> None of the monkeys survived past 20 days. As a summary of the study stated, PFOS “proved to be considerably more toxic to monkeys than anticipated[.]” *Id.* In addition, PFOA reduced the survival rate of fathead minnow fish eggs,<sup>18</sup> and PFOS and PFOA

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<sup>15</sup> TECHNICAL REPORT SUMMARY RE: FATE OF FLUOROchemicals IN THE ENVIRONMENT, BIODEGRADATION STUDIES OF FLUOROCARBONS - II, 3M (Jan. 9, 1978), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1153.pdf>.

<sup>16</sup> TECHNICAL REPORT SUMMARY, FINAL COMPREHENSIVE REPORT ON FM 3422, 3M (Feb. 2, 1979), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX2563.pdf>.

<sup>17</sup> Edwin I. Goldenthal et al., *Fluorad® Fluorochemical Surfactant FC-95, Ninety-Day Subacute Rhesus Monkey Toxicity Study*, 3M Co. (Dec. 18, 1978), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1191.pdf>; Aborted Study, Edwin I. Goldenthal et al., *Fluorad® Fluorochemical Surfactant FC95, Ninety-Day Subacute Rhesus Monkey Toxicity Study*, 3M Co. (Jan. 2, 1979), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1193.pdf>; *FC-95, FC-143 and FM-3422 – 90 Day Subacute Toxicity Studies Conducted at IRDC – Review of Final Reports and Summary* (Mar. 20, 1979), [https://static.ewg.org/reports/2019/pfa-timeline/1977\\_Most%20Toxic.pdf?\\_ga=2.34744996.426747500.1673645134-2012946541.1673645134](https://static.ewg.org/reports/2019/pfa-timeline/1977_Most%20Toxic.pdf?_ga=2.34744996.426747500.1673645134-2012946541.1673645134).

<sup>18</sup> *The Effects of Continuous Aqueous Exposure to 78.03 on Hatchability of Eggs and Growth and Survival of Fry of Fathead Minnow* (June 1978), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1176.pdf>.

were shown to be toxic to rats.<sup>19</sup> As the summary document observed, “[b]ecause of the apparent persistence of these fluorochemicals in the body, *the most important question remains possible long term effects.*”<sup>20</sup>

154. In 1979, 3M also completed a comprehensive biodegradation and toxicity study covering investigations between 1975 and 1978. *Id.* More than a decade after 3M began selling AFFF/Component Products containing fluorosurfactants, it wrote: “there has been a general lack of knowledge relative to the environmental impact of these chemicals. . . .” The report ominously asked, “[i]f these materials are not biodegradable, what is their fate in the environment?”<sup>21</sup>

155. In 1979, 3M and DuPont discussed 3M’s discovery of high levels of PFOS in the blood of its workers. Both companies came to the same conclusion that there was “no reason” to notify the U.S. Environmental Protection Agency (“EPA”) of the finding.<sup>22</sup>

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<sup>19</sup> Wilson P. Dean et al., Fluorad® Fluorochemical Surfactant FC-143, *Acute Oral Toxicity (LD<sub>50</sub>) Study in Rats*, 3M CO. (May 5, 1978), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1170.pdf>; *FC-95, FC-143 and FM-3422 – 90 Day Subacute Toxicity Studies Conducted at IRDC – Review of Final Reports and Summary* (Mar. 20, 1979), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1199.pdf>.

<sup>20</sup> *FC-95, FC-143 and FM-3422 – 90 Day Subacute Toxicity Studies Conducted at IRDC – Review of Final Reports and Summary* (Mar. 20, 1979), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1199.pdf> (emphasis added).

<sup>21</sup> TECHNICAL REPORT SUMMARY, FINAL COMPREHENSIVE REPORT ON FM 3422 (Feb. 2, 1979), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX2563.pdf>.

<sup>22</sup> Memorandum from R.A. Prokop to J.D. Lazerte (July 26, 1979), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX2723.pdf>.

156. 3M told EPA in 1980 only that it had discovered PFOS in the blood of “some of our plant employees[]” despite its 1976 findings, and knowledge from the 1975 study by Guy and Taves that PFOS had been found in the blood of the general population.<sup>23</sup>

157. By at least the end of the 1980s, additional research and testing performed by Defendants, including at least 3M and DuPont, indicated that elevated incidence of certain cancers and other adverse health effects, including elevated liver enzymes and birth defects, had been observed among workers exposed to such materials, including at least PFOA, but such data was not published, provided to governmental entities as required by law, or otherwise publicly disclosed at the time.

158. In 1981, DuPont tested for and found PFOA in the blood of female plant workers at its Washington Works plant in Parkersburg, West Virginia, where it had been using 3M’s PFOA to manufacture Teflon since 1951. DuPont observed and documented pregnancy outcomes in exposed workers, finding two of seven children born to female plant workers between 1979 and 1981 had birth defects – one an “unconfirmed” eye and tear duct defect, and one a nostril and eye defect.<sup>24</sup>

159. In 1983, 3M researchers concluded that concerns about PFAS “give rise to concern for environmental safety,” including “legitimate questions about the persistence, accumulation

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<sup>23</sup> *In Re: Aqueous Film-Forming Foams Prods. Liab. Litig.*, 2:18-mn-02873-RMG, Correspondence from L.D. DeSimone, Group President, 3M to Document Control Officer, Chemical Information Division, EPA (D.S.C. Nov. 19, 1980) attached as an exhibit to Defendants’ Motion for Partial Summary Judgment on the First Element of the Government Contractor Immunity Defense, ECF 1968-17.

<sup>24</sup> C-8 Blood Sampling Results, [https://static.ewg.org/files/PFOA\\_013.pdf?\\_ga=2.66519018.551244859.1678457860-1788446983.1678457860](https://static.ewg.org/files/PFOA_013.pdf?_ga=2.66519018.551244859.1678457860-1788446983.1678457860)

potential, and ecotoxicity of fluorochemicals in the environment.”<sup>25</sup> That same year, 3M completed a study finding that PFOS caused the growth of cancerous tumors in rats.<sup>26</sup> This finding was later shared with DuPont and led them to consider whether “they may be obliged under their policy to call FC-143 a carcinogen in animals.”<sup>27</sup>

160. In 1984, 3M documented a trend of increasing levels of PFOS in the bodies of 3M workers, leading one of the company’s medical officers to warn in an internal memo: “we must view this present trend with serious concern. It is certainly possible that . . . exposure opportunities are providing a potential uptake of fluorochemicals that exceeds excretion capabilities of the body.”<sup>28</sup>

161. The same year, DuPont tested drinking water near its Washington Works plant and found elevated PFOA levels in the water, but, after deciding that limiting PFOA discharge from the plant would not be “economically attractive,” it did nothing to reduce contamination from the plant.

#### **4. 1990s - 2000s: With 3M and DuPont Under Scrutiny, the AFFF Market Is Forced to Respond**

162. Federal law requires chemical manufacturers and distributors to immediately notify EPA if they have information that “reasonably supports the conclusion that such substance or

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<sup>25</sup> 3M ENVIRONMENTAL LABORATORY (EE & PC), FATE OF FLUOROchemicals - PHASE II (May 20, 1983), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1284.pdf>.

<sup>26</sup> Two Year Oral (Diet) Toxicity/Carcinogenicity Study of Fluorochemical FC-143 in Rats, Riker Labs, Inc. / 3M Co., Volume 1 of 4 (Aug. 29, 1987), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1337.pdf>.

<sup>27</sup> Memorandum from R.G. Perkins to F.D. Griffith (Jan. 5, 1988), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1343.pdf>.

<sup>28</sup> Memorandum from D.E. Roach to P.F. Riehle (Aug. 31, 1984), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1313.pdf>.



mixture presents a substantial risk of injury to health or the environment . . . .” Toxic Substances Control Act of 1976 (“TSCA”) §8(e), 15 U.S.C. §2607(e).

163. Despite its decades of research, 3M waited until May 1998 to submit a report to EPA under TSCA Section 8(e). Even in that submission, however, 3M downplayed what it knew, according to a former employee:

Just before that submission we found PFOS in the blood of eaglets – eaglets still young enough that their only food consisted of fish caught in remote lakes by their parents. This finding indicates a widespread environmental contamination and food chain transfer and probable bioaccumulation and bio-magnification. This is a very significant finding that the 8e reporting rule was created to collect. 3M chose to report simply that PFOS had been found in the blood of animals, which is true but omits the most significant information.<sup>29</sup>

164. Although 3M finally acknowledged, in 1998, the presence of PFOS in the blood of the general population, it insisted that it did not “believe that any reasonable basis exists to conclude that PFOS presents a substantial risk of injury to health or the environment.”<sup>30</sup> Internally, the message was quite different: 3M’s Manager of Corporate Toxicology advised the company to replace “PFOS-based chemistry as these compounds [are] *VERY persistent and thus insidiously toxic*.”<sup>31</sup>

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<sup>29</sup> Letter from Rich Purdy, former Env’t Specialist, 3M, to 3M (Mar. 28, 1999), <https://www.ag.state.mn.us/Office/Cases/3M/docs/PTX/PTX1001.pdf>.

<sup>30</sup> Letter from Charles Reich, Grp. Vice President, 3M, to EPA 1 (May 15, 1998), [https://static.ewg.org/reports/2020/pfas-epa-timeline/1998\\_3M-Alerts-EPA.pdf](https://static.ewg.org/reports/2020/pfas-epa-timeline/1998_3M-Alerts-EPA.pdf).

<sup>31</sup> Deena Winter, *Toxic: 3M Knew Its Chemicals Were Harmful Decades Ago, But Didn’t Tell the Public, Government*, MINN. REFORMER (Dec. 15, 2022, 6:01 AM), <https://minnesotareformer.com/2022/12/15/toxic-3m-knew-its-chemicals-were-harmful-decades-ago-but-didnt-tell-the-public-government/> (emphasis added).

165. In 2000, 3M, after half a century of manufacturing fluorinated chemicals through ECF, announced that it would phase out its production of several long-chain PFAS compounds, including PFOA, although it continued to manufacture other PFAS chemicals.

166. In April 2006, 3M agreed to pay EPA a penalty of more than \$1.5 million after being cited for 244 violations of the TSCA, which included violations for failing to disclose studies regarding PFOS, PFOA, and other PFCs dating back decades.

167. Likewise, in December 2005, EPA announced it was imposing the “Largest Environmental Administrative Penalty in Agency History” against DuPont based on evidence that it violated the TSCA by concealing the environmental and health effects of PFOA.<sup>32</sup>

168. On information and belief, Defendants knew or should have known that AFFF/Component Products containing PFOA or PFOS would very likely injure and/or threaten public health and the environment, even when used as intended or directed.

169. Defendants failed to warn of these risks to the environment and public health, including the impact of their AFFF/Component Products on the quality of unprotected water sources.

170. Defendants were all sophisticated and knowledgeable in the art and science of designing, formulating, and manufacturing AFFF/Component Products. They understood far more about the properties of their AFFF/Component Products – including the potential hazards they posed to human health and the environment – than any of their customers. Still, Defendants declined to use their sophistication and knowledge to design safer products.

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<sup>32</sup> News Release, *EPA Settles PFOA Case Against DuPont for Largest Environmental Administrative Penalty in Agency History*, EPA (Dec. 14, 2005), [https://www.epa.gov/archive/epapages/newsroom\\_archive/newsreleases/fdcb2f665cac66bb852570d7005d6665.html](https://www.epa.gov/archive/epapages/newsroom_archive/newsreleases/fdcb2f665cac66bb852570d7005d6665.html).

## 5. 2000s: Formation of the Fire Fighting Foam Coalition

171. Following 3M's phase-out of ECF production and its AFFF product, telomerization emerged as the dominant manufacturing process for fluorosurfactants. 3M had been the dominant manufacturer in the lucrative AFFF market, and multiple companies seized the opportunity created by 3M's withdrawal. But the market opportunity presented uncertainties, as it was unclear whether regulators would view the telomer-based AFFF as posing the same hazards as 3M's PFOS-containing AFFF. The key question for regulators was whether the telomer-based AFFF would degrade to PFOA once in the environment.

172. Defendants Tyco and Chemguard formed a group called the Fire Fighting Foam Coalition ("FFFC") to protect their business opportunity and advocate for the continued use of telomer-based AFFF. The FFFC declared that it would serve as "a single source for accurate, balanced information on environment related questions"<sup>33</sup> and would "ensure that accurate information about PFOS alternatives, including telomer-based products, is disseminated into the marketplace." *Id.* The FFFC made several representations regarding the safety of telomer-based AFFF that were either misleading half-truths or were contrary to Defendants' internal knowledge. For example, the FFFC assured the public that "[t]here is no known biological pathway by which telomer-based AFFF can be oxidized or metabolized into PFOS." *Id.* This statement was true, but only because PFOS was exclusively manufactured by 3M, and it did not mean that telomer-based AFFF was any safer.

173. The FFFC also told EPA in 2001 that "[t]elomer-based AFFF is not made from PFOA-based products." *Id.* The issue, however, was whether telomer-based AFFF could degrade

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<sup>33</sup> *Fact Sheet on AFFF Fire Fighting Agents*, FIRE FIGHTING FOAM COAL., [https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?\\_ga=2.136386352.1253861871.1649070681-2123137255.1639662520](https://static.ewg.org/reports/2020/pfas-firefighter-timeline/2002-03-FFFC.pdf?_ga=2.136386352.1253861871.1649070681-2123137255.1639662520).

into PFOA. One company executive admitted in an internal memo that his company's AFFF "will degrade in the environment" to produce PFOA and the "question is how toxic" and how "bioaccumulative" these degraded products are.<sup>34</sup> But contrary to this internal acknowledgment, the FFFC publicly asserted that "telomer-based fire fighting foams are not likely to be a source of PFOA in the environment."<sup>35</sup>

174. EPA appointed a committee known as the Telomer Technical Workgroup to make recommendations to the agency. The president of the FFFC represented the telomer-based AFFF industry on the EPA committee. When, in 2003, the Telomer Technical Workgroup reported its conclusions and recommendations, the FFFC president was the spokesperson.

175. In what the FFFC president called a "major victory" for the industry, EPA accepted the proposal of its Telomer Technical Workgroup that "telomer-based fire fighting foams no longer be considered as part of the PFOA ECA [Emission Control Area] process." *Id.* The FFFC president remarked that "[w]hen we started this organization two years ago [in 2001], the fate of telomer-based AFFF was being tied directly to the fate of PFOA and EPA had just told the military to start searching for alternatives to AFFF." *Id.* The telomer-based AFFF Defendants had successfully forestalled government restrictions on their products, thereby prolonging the exposure by Plaintiff to Defendants' AFFF products.

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<sup>34</sup> *In re: Aqueous Film-Forming Foams Prods. Liab. Litig.*, 2:18-mn-02873-RMG, Email chain from John Dowling to Anne Regina re: EPA meeting: Comments (D.S.C. Apr. 18, 2001) attached as an exhibit to Plaintiffs' Omnibus Opposition to Defendants' Motion for Partial Summary Judgment on the Second and Third Prongs of the Government Contractor Immunity Defense, ECF 2409-112.

<sup>35</sup> *In Re: Aqueous Film-Forming Foams Prods. Liab. Litig.*, 2:18-mn-02873-RMG, Email from Tom Cortina to Members re: PFOA ECA Plenary Meeting (D.S.C. Oct. 30, 2003) attached as an exhibit to Plaintiffs' Omnibus Opposition to Defendants' Motion for Partial Summary Judgment on the Second and Third Prongs of the Government Contractor Immunity Defense, ECF 2409-108.

176. Fluorochemicals, needed by the Fluorosurfactant Defendants to manufacture those fluorosurfactants contained PFOS, PFOA, and/or their chemical precursors, and were designed, manufactured, marketed, distributed, and/or sold by the PFC Defendants.

177. On information and belief, the PFC Defendants and the Fluorosurfactant Defendants were aware that the fluorochemicals and fluorosurfactants they designed, manufactured, marketed, distributed, and/or sold would be used in the AFFF/Component Products designed, manufactured, marketed, distributed, and/or sold by the AFFF Defendants.

178. On information and belief, the PFC Defendants and the Fluorosurfactant Defendants designed, manufactured, marketed, distributed, and/or sold the fluorochemicals and/or fluorosurfactants contained in the AFFF/Component Products discharged into the environment during fire protection, training, and response activities, resulting in widespread PFAS contamination.

**D. The Scientific Community Discovers the Impact of PFOS and PFOA on the Environment and Human Health**

179. As discussed above, neither 3M or DuPont, nor on information and belief, any other Defendant, complied with their obligations to notify EPA about the “substantial risk of injury to health or the environment” posed by their AFFF/Component Products. *See* TSCA §8(e).

180. A study from the U.S. Centers for Disease Control and Prevention, with national sampling conducted during 1999-2000, found that PFAS chemicals were detected in 98% of the U.S. general population.<sup>36</sup>

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<sup>36</sup> National Library of Medicine, *Legacy and alternative per- and polyfluoroalkyl substances in the U.S. general population: National Health and Nutrition Examination Survey* (June 31, 2019), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7879379/>.

181. Once the truth about PFOS and PFOA was revealed to the scientific community, researchers began to study the environmental and health effects associated with them, including a “C8 Science Panel” formed in 2005 out of a class action settlement arising from contamination from DuPont’s Washington Works plant located in Wood County, West Virginia.

182. The C8 Science Panel consisted of three epidemiologists specifically tasked with determining whether there was a probable link between PFOA exposure and human diseases. In 2012, the C8 Science Panel found probable links between PFOA and kidney cancer, testicular cancer, ulcerative colitis, thyroid disease, pregnancy-induced hypertension (including preeclampsia), and hypercholesterolemia. “Probable link” was defined “to mean that given the available scientific evidence, it is more likely than not that among class members a connection exists between PFOA exposure and a particular human disease.”<sup>37</sup>

183. Human health effects associated with PFOS exposure include immune system effects, changes in liver enzymes and thyroid hormones, low birth weight, high uric acid, and high cholesterol. Additionally, a recent study found that PFAS showed positive associations with incident hypertension in middle-aged women, suggesting that PFAS is “an underappreciated contributing factor to women’s cardiovascular disease risk.”<sup>38</sup>

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<sup>37</sup> C8 SCI. PANEL, PROBABLE LINK EVALUATION FOR HEART DISEASE (INCLUDING HIGH BLOOD PRESSURE, HIGH CHOLESTEROL, CORONARY ARTERY DISEASE) (Oct. 29, 2012), [http://www.c8sciencepanel.org/pdfs/Probable\\_Link\\_C8\\_Heart\\_Disease\\_29Oct2012.pdf](http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Heart_Disease_29Oct2012.pdf).

<sup>38</sup> Ning Ding et al., *Per- and Polyfluoroalkyl Substances and Incident Hypertension in Multi-Racial/Ethnic Women: The Study of Women’s Health Across the Nation*, 79 HYPERTENSION 1876, 1876 (2022), <https://www.ahajournals.org/doi/epdf/10.1161/HYPERTENSIONAHA.121.18809>.

184. In laboratory testing on animals, PFOA and PFOS have caused the growth of tumors, changed hormone levels, and affected the function of the liver, thyroid, pancreas, and immune system.<sup>39</sup>

185. The health injuries caused by PFAS can arise days or years after exposure.

186. Even after the C8 Science Panel publicly announced that human exposure to 50 ppt, or more, of PFOA in drinking water for one year or longer had “probable links” with certain human diseases, including kidney cancer, testicular cancer, ulcerative colitis, thyroid disease, preeclampsia, and medically diagnosed high cholesterol, Defendants repeatedly assured and represented to governmental entities, their customers, and the public (and continue to do so) that the presence of PFOA in human blood at the levels found within the United States presents no risk of harm and is of no legal, toxicological, or medical significance of any kind.

187. Furthermore, Defendants have represented to and assured such governmental entities, their customers, and the public (and continue to do so) that the work of the independent C8 Science Panel was inadequate to satisfy the standards of Defendants to prove such adverse effects upon and/or any risk to humans with respect to PFOA in human blood.

188. At all relevant times, Defendants, through their acts and/or omissions, controlled, minimized, trivialized, manipulated, and/or otherwise influenced the information published in peer-reviewed journals, released by any governmental entity, and/or otherwise made available to the public relating to PFAS in human blood and any alleged adverse impacts and/or risks associated therewith, effectively preventing the public from discovering the existence and extent of any injuries/harm as alleged herein.

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<sup>39</sup> Kellyn S. Betts, *PERFLUOROALKYL ACIDS: What Is the Evidence Telling Us?*, 115 ENV'T HEALTH PERSPS. A250 (2007), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1867999/>.

**E. Federal, State, and Internal Governmental Agencies Call for Monitoring and Cleanup of PFAS Contamination**

189. On May 2, 2012, EPA published its Third Unregulated Contaminant Monitoring Rule, requiring PWSs nationwide to monitor, between 2013 and 2015, for 30 contaminants of concern, including PFOS and PFOA.<sup>40</sup>

190. In May 2015, scientists and other professionals from various disciplines concerned about the production and release of PFAS into the environment published, *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, calling for greater regulation, restrictions, limits on the manufacture and handling of any PFOA-containing product, and development of safe non-fluorinated alternatives to these products, to avoid long-term harm to human health and the environment.<sup>41</sup>

191. On May 25, 2016, EPA released lifetime health advisories (“HAs”) and health effects support documents for PFOS and PFOA.<sup>42</sup> EPA developed the HAs to assist governmental officials in protecting public health when PFOS and PFOA are present in drinking water. The HAs identified 70 ppt as the concentration of PFOS and PFOA in drinking water at or below which adverse health effects are not anticipated to occur over a lifetime of exposure. The HAs were

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<sup>40</sup> Revisions to the Unregulated Contaminant Monitoring Regulation (UCMR 3) for Public Water Systems, 77 Fed. Reg. 26,072 (May 2, 2012).

<sup>41</sup> Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123 ENV’T HEALTH PERSPS. A107 (2015), <https://ehp.niehs.nih.gov/doi/epdf/10.1289/ehp.1509934>.

<sup>42</sup> See Lifetime Health Advisories and Health Effects Support Documents for Perfluorooctanoic Acid and Perfluorooctane Sulfonate, 81 Fed. Reg. 33,250 (May 25, 2016); EPA, LIFETIME HEALTH ADVISORIES AND HEALTH EFFECTS SUPPORT DOCUMENTS FOR PERFLUOROOCTANOIC ACID AND PERFLUOROOCTANE SULFONATE (May 19, 2016), [https://www.epa.gov/sites/default/files/2016-05/documents/pfoa\\_pfes\\_prepub\\_508.pdf](https://www.epa.gov/sites/default/files/2016-05/documents/pfoa_pfes_prepub_508.pdf); see also *Nat’l Ass’n for Surface Finishing v. EPA*, 795 F.3d 1, 4, 6 (D.C. Cir. 2015) (referring to PFOS as a “toxic compound” and a “hazardous chemical”).



based on peer-reviewed studies of the effects of PFOS and PFOA on laboratory animals (rats and mice) and were also informed by epidemiological studies of human populations exposed to PFAS. These studies indicated that exposure to PFOS and PFOA over these levels may result in adverse health effects, including:

- (a) developmental effects to fetuses during pregnancy or to breastfed infants (*e.g.*, low birth weight, accelerated puberty, skeletal variations);
- (b) cancer (testicular and kidney);
- (c) liver effects (tissue damage);
- (d) immune effects (*e.g.*, antibody production and immunity); and
- (e) thyroid disease and other effects (*e.g.*, cholesterol changes).

192. In 2016, the National Toxicology Program (“NTP”) of the U.S. Department of Health and Human Services and the International Agency for Research on Cancer (“IARC”) both released extensive analyses of the expanding body of research regarding the adverse effects of PFCs. The NTP concluded that both PFOA and PFOS are “presumed to be an immune hazard to humans” based on a “consistent pattern of findings” of adverse immune effects in human (epidemiology) studies and “high confidence” that PFOA and PFOS exposure was associated with suppression of immune responses in animal (toxicology) studies.<sup>43</sup>

193. The IARC similarly concluded that there is “evidence” of “the carcinogenicity of . . . PFOA” in humans and in experimental animals, meaning that “[a] positive association has been

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<sup>43</sup> See NAT’L TOXICOLOGY PROGRAM, NTP MONOGRAPH: IMMUNOTOXICITY ASSOCIATED WITH EXPOSURE TO PERFLUOROOCCTANOIC ACID OR PERFLUOROOCCTANE SULFONATE 1, 17, 19 (2016), [https://ntp.niehs.nih.gov/ntp/ohat/pfoa\\_pfos/pfoa\\_pfosmonograph\\_508.pdf](https://ntp.niehs.nih.gov/ntp/ohat/pfoa_pfos/pfoa_pfosmonograph_508.pdf).

observed between exposure to the agent and cancer for which a causal interpretation is . . . credible.”<sup>44</sup>

194. The U.S. Senate and House of Representatives passed the National Defense Authorization Act in November 2017, which included \$42 million to remediate PFC contamination from military bases, as well as devoting \$7 million toward the Investing in Testing Act, which authorizes the Center for Disease Control and Prevention to conduct a study into the long-term health effects of PFOA and PFOS exposure.<sup>45</sup> The legislation also required that the U.S. Department of Defense (“DOD”) submit a report on the status of developing a new military specification for AFFF that did not contain PFOS or PFOA.<sup>46</sup>

195. In December 2019, the U.S. Senate and House of Representatives passed the National Defense Authorization Act for Fiscal Year 2020, which introduced new prohibitions on the use of PFAS-containing AFFF for land-based applications.<sup>47</sup> Section 322 of the Act introduced a timeline for the phasing out of AFFF use by the military, including by requiring the Secretary of the Navy to publish a new military specification for a fluorine-free fire-fighting agent for use at all military installations by January 31, 2023. Section 322(b) and (c) provide that DOD organizations will no longer be authorized to purchase AFFF containing more than one part per billion of PFAS

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<sup>44</sup> See IARC Working Grp. on the Evaluation of Carcinogenic Risks to Hums., *Some Chemicals Used as Solvents and in Polymer Manufacture*, 110 IARC MONOGRAPHS ON RISKS TO HUMS. 1, 27, 97 (2016), <http://monographs.iarc.fr/ENG/Monographs/vol110/mono110.pdf>.

<sup>45</sup> National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91, 131 Stat. 1283 (2017), <https://www.congress.gov/115/plaws/publ91/PLAW-115publ91.pdf>.

<sup>46</sup> *Id.*; see also U.S. DEP’T OF DEF., ALTERNATIVES TO AQUEOUS FILM FORMING FOAM REPORT TO CONGRESS (2018), <https://www.denix.osd.mil/derp/home/documents/alternatives-to-aqueous-film-forming-foam-report-to-congress/>.

<sup>47</sup> National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, 133 Stat. 1198 (2019), <https://www.congress.gov/116/plaws/publ92/PLAW-116publ92.pdf>.

after October 1, 2023, and that after October 1, 2024, this prohibition will extend to the use of any PFAS-containing AFFF at any military installation.

196. On February 20, 2020, EPA announced a proposed decision to regulate PFOA and PFOS under the Safe Drinking Water Act, 42 U.S.C. §300f *et seq.*, which the agency characterized as a “key milestone” in its efforts to “help communities address per- and polyfluoroalkyl substances (PFAS) nationwide.”<sup>48</sup>

197. In October 2021, EPA launched its PFAS Strategic Roadmap, outlining EPA’s commitments to Action for 2021-2024, including proposing national testing to accelerate research and regulatory development, establishing a national primary drinking water regulation for PFOA and PFOS under the Safe Drinking Water Act, and enacting further actions to broaden and accelerate the cleanup of PFAS.<sup>49</sup>

198. On June 15, 2022, EPA updated its 2016 drinking water health advisories for PFOS and PFOA. The interim advisories decreased the maximum limits of exposure by more than a thousandfold, with a new limit for PFOS of 0.02 ppt, and for PFOA of 0.004 ppt.<sup>50</sup>

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<sup>48</sup> Press Release, *EPA Announces Proposed Decision to Regulate PFOA and PFOS in Drinking Water*, EPA (Feb. 20, 2020), <https://www.epa.gov/newsreleases/epa-announces-proposed-decision-regulate-pfoa-and-pfos-drinking-water>.

<sup>49</sup> *PFAS Strategic Roadmap: EPA’s Commitments to Action 2021-2024*, EPA (Oct. 2021), [https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap\\_final-508.pdf](https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf)

<sup>50</sup> *EPA Announces New Drinking Water Health Advisories for PFAS Chemicals*, EPA (Jun. 2022), <https://www.epa.gov/newsreleases/epa-announces-new-drinking-water-health-advisories-pfas-chemicals-1-billion-bipartisan>

199. In July 2022, California added PFOA and PFOS to its Proposition 65 list as chemicals known to cause reproductive toxicity under the Safe Drinking Water and Toxic Enforcement Act of 1986.<sup>51</sup>

200. On August 26, 2022, EPA posted to its website a Notice of Proposed Rulemaking Designating Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”) Hazardous Substances, and it allowed for comments from the public through November 7, 2022.<sup>52</sup> CERCLA authorizes regulations designating as hazardous substances which, when released into the environment, may present substantial danger to the public health or welfare or the environment; such a designation would ultimately facilitate cleanup of contaminated sites and reduce human exposure to these “forever” chemicals. *Id.*

201. On March 14, 2023, EPA proposed a legal national drinking water standard for PFAS, proposing a limit of no more than 4 ppt for each PFOA and PFOS, where they can be reliably measured.<sup>53</sup> If finalized, the proposed regulation will require PWSs to monitor for these

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<sup>51</sup> Cal. Off. Env’t Health Hazard Assessment, *Chemicals Listed Effective Nov. 10, 2017 as Known to the State of California to Cause Reproductive Toxicity: Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)* (Nov. 9, 2017), <https://oehha.ca.gov/proposition-65/cmr/chemicals-listed-effective-november-10-2017-known-state-california-cause>.

<sup>52</sup> *Proposed Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances*, EPA, <https://www.epa.gov/superfund/proposed-designation-perfluorooctanoic-acid-pfoa-and-perfluorooctanesulfonic-acid-pfos> (last updated Mar. 2, 2023).

<sup>53</sup> News Release, *Biden-Harris Administration Proposes First-Ever National Standard to Protect Communities from PFAS in Drinking Water*, EPA (Mar. 14, 2023), <https://www.epa.gov/newsreleases/biden-harris-administration-proposes-first-ever-national-standard-protect-communities>.

chemicals. It will also require systems to notify the public and reduce PFAS contamination if levels exceed the proposed regulatory standards. *Id.*

202. Based on EPA recommendations, Plaintiff has now begun, or will imminently incur expenditures to: (a) monitor for and report detectable PFAS; (b) notify the public if monitoring detects PFAS at levels that exceed proposed regulatory standards; and (c) take actions to reduce the levels of these PFAS in drinking water because results to date exceed the proposed regulatory standards, including “removing PFAS through various treatments or switching to an alternative water supply that meets the standards.”<sup>54</sup>

203. In 2022, the North Carolina Department of Environmental Quality (“DEQ”) conducted PFAS level assessments in public water systems in anticipation of new EPA drinking water regulations. This included a focused three-month sampling of 50 water systems, of which 42 were found to exceed the proposed maximum PFAS levels.<sup>55</sup> The DEQ is progressing towards establishing regulatory standards for PFAS in both groundwater and surface water.<sup>56</sup> These proposed rule-making concepts are set to be presented to the committees of the Environmental Management Commission in upcoming meetings.

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<sup>54</sup> EPA Fact Sheet, *EPA’s Proposal to Limit PFAS in Drinking Water* (Mar. 2023), [https://www.epa.gov/system/files/documents/2023-03/Fact%20Sheet\\_PFAS\\_NPWDR\\_Final\\_3.14.23.pdf](https://www.epa.gov/system/files/documents/2023-03/Fact%20Sheet_PFAS_NPWDR_Final_3.14.23.pdf).

<sup>55</sup> North Carolina Department of Environmental Quality, *DEQ PFAS Sampling of Public Water Systems*, NC DEQ (2022), <https://www.deq.nc.gov/news/key-issues/emerging-compounds/understanding-pfas/deq-pfas-sampling-public-water-systems>.

<sup>56</sup> North Carolina Department of Environmental Quality, *Action Strategy for PFAS*, NC DEQ (June 7, 2023), <https://www.deq.nc.gov/news/key-issues/emerging-compounds/action-strategy-pfas>.

204. North Carolina is also actively addressing PFAS contamination through legislative measures: House Bill 660<sup>57</sup> (“PFAS Free NC”) and Senate Bill 658<sup>58</sup> (“Water Safety Act of 2023”). House Bill 660, introduced in the 2023-2024 session and referred to the Committee on Rules, Calendar, and Operations of the House, focuses on public health and environmental regulations concerning PFAS. Senate Bill 658, filed in April 2023 and referred to the Senate’s Committee on Agriculture, Energy, and Environment, aims to safeguard citizens from PFAS in drinking water, incorporating research and analysis on exposure risks.

**F. AFFF Containing PFOS and PFOA Is Fungible and Commingled in Surface and Groundwater**

205. AFFF containing PFOS and/or PFOA, once it has been released to the environment, lacks characteristics that would enable identification of the company that manufactured that particular batch of AFFF or chemical feedstock.

206. A subsurface plume, even if it comes from a single location, such as a retention pond or fire training area, often originates from mixed batches of AFFF and chemical feedstock coming from different manufacturers.

207. Because precise identification of the specific manufacturer of any given AFFF/Component Product that was a source of the PFAS found by Plaintiff is nearly impossible, given certain exceptions, Plaintiff must pursue all Defendants, jointly and severally.

208. Defendants are also jointly and severally liable because they conspired to conceal the true toxic nature of PFOS and PFOA, to profit from the use of AFFF/Component Products containing PFOS and PFOA, at Plaintiff’s expense, and to attempt to avoid liability.

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<sup>57</sup> H.B. 660, 2023-2024 Gen. Assemb., Reg. Sess. (N.C. 2023).

<sup>58</sup> S.B. 658, 2023-2024 Gen. Assemb., Reg. Sess. (N.C. 2023).

## **V. EQUITABLE TOLLING OF APPLICABLE STATUTE OF LIMITATIONS**

209. Within the period of any applicable statutes of limitation, Plaintiff could not have discovered through the exercise of reasonable diligence that Defendants failed to disclose the indestructibility and pervasiveness of PFAS in the environment, including in surface and groundwater sources.

210. Plaintiff did not discover and did not know of facts that would have caused a reasonable person to suspect that Defendants failed to disclose the indestructibility and pervasiveness of PFAS in the environment, including in surface and groundwater sources. The information indicating the harm and pervasiveness of PFAS was, until recently, within the exclusive knowledge of Defendants.

211. Defendants actively misled and prevented the public, including Plaintiff, from discovering the facts essential to the filing of a timely lawsuit. Defendants' conduct amounted to a breach of good faith.

212. As such, Plaintiff could not have reasonably discovered the true extent of Defendants' deception with regard to pervasiveness and harm caused by PFAS contained in Defendants' AFFF/Component Products.

213. Once Plaintiff became aware of the contamination and pervasiveness of PFAS in the environment, including in its surface and/or groundwater supplies, and/or treatment plant residuals, Plaintiff diligently and actively began to characterize the presence of PFAS chemicals in its source waters (using the draft analytical methods available at the time) and pursue judicial remedies. In fact, Plaintiff has been conducting voluntarily testing of its finished water since 2020. For these reasons, equitable tolling applies to all applicable statutes of limitation to prevent unfairness to Plaintiff.

## **VI. ADDITIONAL ALLEGATIONS SUPPORTING PUNITIVE DAMAGES**

214. Defendants engaged in willful, wanton, malicious, and/or fraudulent conduct that caused the foregoing damage upon Plaintiff, disregarding its protected rights.

215. Defendants' willful, wanton, malicious, and/or fraudulent conduct includes, but is not limited to, Defendants' failure to take all reasonable measures to ensure PFAS would not be released into the environment and inevitably cause Plaintiff's surface and/or groundwater supplies and treatment plant residuals to be contaminated.

216. Defendants, acting with implied malice and an outrageously conscious disregard for Plaintiff's rights and safety, have caused great harm to Plaintiff, such that the imposition of punitive damages is warranted.

## **VII. CAUSES OF ACTION**

### **COUNT I DEFECTIVE DESIGN (Against All Defendants)**

217. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 229 above, and further alleges the following:

218. As manufacturers of AFFF/Component Products containing PFOS, PFOA, and/or their chemical precursors, Defendants had a duty to exercise reasonable care in designing and manufacturing these products to ensure they were not unreasonably dangerous for their intended use.

219. Defendants, at the time of manufacture, acted unreasonably in designing the AFFF/Component Products, leading to foreseeable and substantial risks of environmental contamination and health hazards upon their normal use.

220. Defendants' design of the AFFF/Component Products was deficient because:



(a) A safer, practical, and feasible alternative design existed at the time of manufacture, which would have significantly mitigated the risks of PFAS contamination without impairing the product's usefulness; and/or

(b) The design or formulation of the AFFF/Component Products was so unreasonable that a person aware of the significant risks of environmental contamination and health hazards associated with PFAS would not have used these products.

221. Defendants failed to adequately consider the following factors in their design process:

(a) The nature and magnitude of risks associated with PFAS, considering the product's intended and foreseeable uses;

(b) The likely ignorance of users regarding these risks;

(c) The utility of the product versus the potential for safer alternative designs;  
and

(d) The feasibility of alternative designs at the time of manufacture.

222. Defendants were aware, or should have been aware, of the risks associated with PFAS, yet failed to adopt safer alternatives, constituting a breach of their duty to design safe products.

223. At all times, Defendants were capable of making AFFF/Component Products that did not contain PFOS, PFOA, and/or other PFAS and their chemical precursors. Thus, reasonable alternative designs existed which were capable of preventing Plaintiff's injuries.

224. Each Defendant's AFFF/Component Products are toxic and persist for many years, if not indefinitely.

225. Each Defendant's AFFF/Component Products were used in or transported in the environment to Plaintiff's service area and, whether by direct discharge, air deposition, or surface runoff, ended up in Plaintiff's raw drinking water supply.

226. The risks posed by AFFF/Component Products containing PFOS, PFOA, other PFAS chemicals, and/or their chemical precursors far outweigh the products' utility as a flame-control product.

227. The likelihood that Defendants' AFFF/Component Products would be spilled, discharged, disposed of, or released into the environment and contaminate Plaintiff's water systems with PFAS far outweighed any burden on Defendants to adopt an alternative design, and outweighed the marginal adverse effect of such alternative design on the utility of the product.

228. Each Defendant's AFFF/Component Products proximately caused Plaintiff's injuries because, through ordinary use of the products, they would enter groundwater, be washed into streams of water, and be discharged into PWSs that received the water after use as a public water supply, thus causing contamination of Plaintiff's surface and/or groundwater supplies and treatment residuals.

229. As part of discovery, Plaintiff will be able to further identify the specific suppliers and manufacturers of PFAS by tracing the chemicals contained in products manufactured by Defendants which were used in or transported to in the environment to Plaintiff's airshed and watershed and which entered Plaintiff's water sources and drinking water supply.

230. As a direct and proximate result of Defendants' unreasonably dangerous design, manufacture, and sale of AFFF/Component Products containing PFOS, PFOA, Plaintiff has been harmed by, and faces the imminent, certainly impending, and substantially heightened risk of future harm related to, PFAS contamination. These damages include:

(a) costs and expenses related to investigation, sampling, testing, assessment, and reporting of the extent of PFAS contamination to Plaintiff, including their surface and/or groundwater supplies, as well as treatment residuals, resulting from AFFF/Component Products;

(b) costs and expenses associated with managing water treatment plant residuals contaminated with PFAS chemicals;

(c) costs and expenses related to monitoring systems and programs to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(d) costs and expenses related to installation and maintenance of filtration systems to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(e) treatment and remediation costs for PFAS-contaminated surface and/or groundwater supplies, water infrastructure, as well as treatment residuals to Plaintiff resulting from AFFF/Component Products;

(f) additional costs relating to infrastructure modifications and/or upgrades, including, but not limited to, design, construction, operation, and maintenance of systems related to PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(g) costs and expenses associated with obtaining new, less desirable, or harder to treat water sources stemming from PFAS contamination to Plaintiff resulting from AFFF/Component Products; and

(h) costs and expenses associated with modifying the use of existing water supply sources to minimize PFAS levels in finished drinking water and treatment plant residuals.

231. Defendants knew that it was substantially certain that their acts and omissions described above would contaminate Plaintiff's surface and/or groundwater supplies, treatment

residuals and treatment and distribution facilities. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for Plaintiff's health, safety, and/or property rights.

**COUNT II**  
**FAILURE TO WARN**  
(Against All Defendants)

232. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 229 above, and further alleges the following:

233. As manufacturers of AFFF/Component Products containing PFOS, PFOA, other PFAS chemicals and/or their chemical precursors, Defendants had a duty to provide adequate warnings or instructions of the risks of these products to all persons whom its product might foreseeably harm, including Plaintiff and the public.

234. It is foreseeable that as a natural and probable consequence of AFFF/Component Products' designed use, structure, and indestructibility, they would through ordinary use of the products, reach groundwater, be washed into streams of water, and be introduced into PWSs, thus causing harm.

235. Defendants breached their duties owed to Plaintiff by failing to provide adequate warnings or instructions, despite the products' inherent dangers for their reasonably anticipated uses, as evidenced by:

- (a) The extensive contamination of surface and groundwater, as well as treatment residuals, caused by PFAS, even when used as intended;
- (b) The ability of even low levels of PFAS to render drinking water unsafe;
- (c) The significant threats posed by PFAS to public health;
- (d) The real and potential environmental damage caused by PFAS; and

(e) The imposition of additional disposal costs for contaminated water treatment plant residuals.

236. Each Defendant's AFFF/Component Products are toxic and persist for many years, if not indefinitely.

237. Each Defendant's AFFF/Component Products were used in or transported in the environment to Plaintiff's service area and, whether by direct discharge, air deposition, or surface runoff, ended up in Plaintiff's raw drinking water supply.

238. Defendants knew, or should have known, of the health and environmental risks associated with their AFFF/Component Products and failed to provide a warning that would lead an ordinary reasonable user or handler of a product to contemplate the dangers associated with their products or an instruction that would have avoided Plaintiff's injuries.

239. Despite Defendants' knowledge of the environmental and human health hazards associated with the use and/or disposal of their AFFF/Component Products into water supplies and directly into PWSs, including PFAS contamination of public drinking supplies, Defendants failed to issue any warnings, instructions, recalls, or advice regarding their AFFF/Component Products to Plaintiff, governmental agencies, or the public.

240. The risks associated with PFOS, PFOA, and other PFAS chemicals and their precursors present in the AFFF/Component Products were neither open and obvious nor a matter of common knowledge to the Plaintiff or the public.

241. Each Defendant's AFFF/Component Products proximately caused Plaintiff's injuries because each caused contamination of Plaintiff's surface and/or groundwater supplies and treatment residuals.

242. As part of discovery, Plaintiff will be able to further identify the specific suppliers and manufacturers of PFAS by tracing the chemicals contained in products manufactured by Defendants which were used in or transported to in the environment to Plaintiff's airshed and watershed and which entered Plaintiff's water sources and drinking water supply.

243. As a direct and proximate result of Defendants' failure to warn of the unreasonably dangerous nature of their AFFF/Component Products containing PFOS, PFOA, and other PFAS chemicals (and their precursors) Plaintiff has been harmed by, and faces the imminent, certainly impending, and substantially heightened risk of future harm related to, PFAS contamination. These damages include:

- (a) costs and expenses related to investigation, sampling, testing, assessment, and reporting of the extent of PFAS contamination to Plaintiff resulting from AFFF/Component Products;

- (b) costs and expenses associated with managing water treatment plant residuals contaminated with PFAS chemicals;

- (c) costs and expenses related to monitoring systems and programs to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

- (d) costs and expenses related to installation and maintenance of filtration systems to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

- (e) treatment and remediation costs for PFAS-contaminated surface and/or groundwater supplies, treatment plant residuals, and water infrastructure to Plaintiff resulting from AFFF/Component Products;

(f) additional costs relating to infrastructure modifications and/or upgrades, including, but not limited to, design, construction, operation, and maintenance of systems related to PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(g) costs and expenses associated with obtaining new, less desirable, or harder to treat water sources stemming from PFAS contamination to Plaintiff resulting from AFFF/Component Products; and

(h) costs and expenses associated with modifying the use of existing water supply sources to minimize PFAS levels in finished drinking water and treatment plant residuals.

244. Defendants knew that it was substantially certain that their acts and omissions described above would result in contamination to Plaintiff. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for Plaintiff's health, safety, and/or property rights.

**COUNT III**  
**NEGLIGENCE**  
(Against All Defendants)

245. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 229 above, and further alleges the following:

246. As manufacturers of AFFF/Component Products containing PFOS, PFOA, other PFAS chemicals, and/or their chemical precursors, Defendants owed a duty to Plaintiff and all persons whom their products might foreseeably harm to exercise due care in the formulation, manufacture, sale, labeling, warning, and use of AFFF/Component Products.

247. Defendants owed a duty to Plaintiff to act reasonably and not place inherently dangerous AFFF/Component Products into the marketplace when their release into the air, soil, and water was imminent and certain.

248. It is foreseeable that as a natural and probable consequence of AFFF/Component Products' designed use, structure, and indestructibility, that they would through ordinary use of the products, reach groundwater, be washed into streams of water, and be introduced into PWSs, thus causing harm.

249. Defendants knew or should have known that PFAS were leaching from AFFF used for fire protection and response activities into the air, ground and surrounding surface and ground waterways.

250. Defendants knew or should have known that PFAS are highly soluble in water, highly mobile, extremely persistent in the environment, and highly likely to contaminate surface and groundwater supplies, as well as water treatment plant residuals, if released into the environment.

251. Defendants knew or should have known that the manner in which they were designing, manufacturing, marketing, distributing, and selling their AFFF/Component Products would result in contamination to Plaintiff's finished drinking water, water storage, and treatment plant residuals.

252. Despite the fact that Defendants knew or should have known that PFAS are toxic, can contaminate water resources, and are carcinogenic, Defendants negligently:

- (a) designed, manufactured, formulated, handled, labeled, instructed, controlled, marketed, promoted, and/or sold AFFF/Component Products containing PFOS, PFOA, other PFAS chemicals, and/or their chemical precursors;

- (b) issued deficient instructions on how their AFFF/Component Products should be used and disposed of, thereby permitting PFAS to contaminate Plaintiff's surface and groundwater supplies, and treatment plant residuals;



(c) failed to recall and/or warn the users of their AFFF/Component Products of the dangers of surface and groundwater contamination as well as treatment plant residuals as a result of standard use and disposal of their products;

(d) failed and refused to issue the appropriate warning and/or recalls to the users of their AFFF/Component Products; and

(e) failed to take reasonable, adequate, and sufficient steps or actions to eliminate, correct, or remedy any contamination after it occurred.

253. Each Defendant's AFFF/Component Products are toxic and persist for many years, if not indefinitely.

254. Each Defendant's AFFF/Component Products were used in or transported in the environment to Plaintiff's service area and, whether by direct discharge, air deposition, or surface runoff, ended up in Plaintiff's raw drinking water supply.

255. The magnitude of the burden on Defendants to guard against this foreseeable harm to Plaintiff was minimal, as the practical consequences of placing this burden on Defendants amounted to a burden to provide adequate instructions, proper labeling, and sufficient warnings about their AFFF/Component Products.

256. As manufacturers, Defendants were in the best position to provide adequate instructions, proper labeling, and sufficient warnings about their AFFF/Component Products, and to take steps to prevent, eliminate, correct, or remedy any contamination they caused.

257. Defendants breached their duties owed to Plaintiff because they knew or should have known that the AFFF/Component Products they manufactured contained PFAS, which would, and in fact has, resulted in contamination to Plaintiff.

258. Each Defendant's AFFF/Component Products proximately caused Plaintiff's injuries because each caused contamination of Plaintiff's surface and/or groundwater supplies and treatment residuals.

259. As part of discovery, Plaintiff will be able to further identify the specific suppliers and manufacturers of PFAS by tracing the chemicals contained in products manufactured by Defendants which were used in or transported in the environment to Plaintiff's airshed and watershed and which entered Plaintiff's water sources and drinking water supply.

260. As a direct and proximate result of Defendants' misconduct, Plaintiff has been harmed by, and faces the imminent, certainly impending, and substantially heightened risk of future harm related to, PFAS contamination. These damages include:

- (a) costs and expenses related to investigation, sampling, testing, assessment, and reporting of the extent of PFAS contamination to Plaintiff resulting from AFFF/Component Products;

- (b) costs and expenses associated with managing water treatment plant residuals contaminated with PFAS chemicals;

- (c) costs and expenses related to monitoring systems and programs to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

- (d) costs and expenses related to installation and maintenance of filtration systems to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

- (e) treatment and remediation costs for PFAS-contaminated surface and/or groundwater supplies, treatment plant residuals, and water infrastructure to Plaintiff resulting from AFFF/Component Products;

(f) additional costs relating to infrastructure modifications and/or upgrades, including, but not limited to, design, construction, operation, and maintenance of systems related to PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(g) costs and expenses associated with obtaining new, less desirable, or harder to treat water sources stemming from PFAS contamination to Plaintiff resulting from AFFF/Component Products; and

(h) costs and expenses associated with modifying the use of existing water supply sources to minimize PFAS levels in finished drinking water and treatment plant residuals.

261. Defendants knew that it was substantially certain that their acts and omissions described above would cause contamination to Plaintiff. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for Plaintiff's health, safety, and/or property rights.

**COUNT IV**  
**PUBLIC NUISANCE**  
(Against All Defendants)

262. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 229 above, and further alleges the following:

263. Plaintiff is a PWS that provides services to residents and businesses in its service area, which include providing drinking water to residents from surface and/or groundwater supplies, used for drinking, bathing, cleaning, washing, cooking, and other uses.

264. Because Plaintiff is a PWS, the water it provides flows from public water sources. Members of the public have a right to have their water supplies remain free of Defendants' toxic contamination.

265. Defendants' acts and omissions, including their manufacture, sale, supply, marketing, and defective design of and/or failure to warn regarding PFOA, PFOS, and other PFAS chemicals in their AFFF/Component Products resulted in PFAS contamination to Plaintiff, and thus an unreasonable interference with Plaintiff's use and enjoyment of their property.

266. The impact of PFAS from AFFF/Component Products on human health and the environment are matters of substantial public interest and significant concern to Plaintiff.

267. Defendants' nuisance-creating conduct was intentional and unreasonable, violated legal requirements for the protection of others, and has substantially and unreasonably interfered with Plaintiff's ownership and/or possession, use, and enjoyment of their property. Defendants' conduct has affected and continues to substantially affect public health and the environment.

268. Defendants had control over their conduct which had an adverse effect on Plaintiff and the public. Defendants had sufficient control over, and responsibility for, the public nuisance they created. Defendants were in control of the "instrumentality" of the nuisance, namely manufacture, distribution, sale, supply, and marketing of AFFF/Component Products.

269. The nuisance created by Defendants' conduct is abatable.

270. This harm to public health, the environment, Plaintiff outweighs any social utility of Defendants' wrongful conduct.

271. The rights, interests, and inconvenience to Plaintiff far outweigh the rights, interests, and inconvenience to Defendants, who have profited tremendously from their wrongful conduct.

272. Consequently, Defendants substantially and unreasonably interfered with and caused material damage and/or great disruption to Plaintiff, endangering public property, as well

as the health, safety, and comfort of tens of millions of persons. Such actions create, contribute to, or maintain a public nuisance, and injury is inevitable and undoubted.

273. As a PWS, Plaintiff suffers injuries different in kind from the community at large because it must produce finished drinking water which is safe for public consumption as an essential component of its public service functions.

274. Defendants knew it was substantially certain that their acts and omissions described above would cause injury and damage, including PFOA and PFOS contamination to Plaintiff. Defendants committed each of the above-described acts and omissions knowingly, willfully, and with oppression, fraud, and/or malice. Such conduct was performed to promote sales of AFFF/Component Products, in conscious disregard to the probable dangerous consequences of that conduct and its reasonably foreseeable impacts on public health and welfare.

275. Each Defendant's AFFF/Component Products are toxic and persist for many years, if not indefinitely.

276. Each Defendant's AFFF/Component Products were used in or transported in the environment to Plaintiff's service area and, whether by direct discharge, air deposition, or surface runoff, ended up in Plaintiff's raw drinking water supply.

277. Each Defendant's AFFF/Component Products proximately caused Plaintiff's injuries because each caused contamination of Plaintiff's surface and/or groundwater supplies and treatment residuals.

278. As part of discovery, Plaintiff will be able to further identify the specific suppliers and manufacturers of PFAS by tracing the chemicals contained in products manufactured by Defendants which were used in or transported in the environment to Plaintiff's airshed and watershed and which entered Plaintiff's water sources and drinking water supply.

279. Therefore, Plaintiff requests an Order providing for abatement and remediation of the public nuisance that Defendants have created, and enjoining Defendants from future violations.

280. Plaintiff also requests an award of punitive damages in an amount sufficient to punish these Defendants and that fairly reflects the aggravating circumstances alleged herein.

281. Defendants are jointly and severally liable for all such damages, and Plaintiff is entitled to recover all such damages and other relief as set forth below.

**COUNT V**  
**PRIVATE NUISANCE**  
(Against All Defendants)

282. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 229 above, and further alleges the following:

283. Plaintiff is a PWS that provides drinking water supplies to its customers.

284. Defendants' intentional, negligent, and/or reckless conduct, as alleged herein, has resulted in substantial contamination to Plaintiff with PFOA, PFOS, and other PFAS chemicals from Defendants' AFFF/Component Products, human carcinogens that cause adverse environmental and health effects.

285. Defendants' manufacture, distribution, sale, supply, and marketing of AFFF/Component Products containing PFOA/PFOS and other PFAS chemicals were unreasonable because Defendants had, for example, knowledge of the unique and dangerous chemical properties of PFOA and PFOS and knew that contamination of public water supplies, water treatment residuals, and water treatment plants was substantially certain to occur, but failed to provide adequate warnings of or take any other precautionary measures to mitigate those hazards.

286. The contamination caused, contributed to, and/or maintained by Defendants has substantially and unreasonably interfered with Plaintiff's property rights.

287. Each Defendant has caused, contributed to, and/or maintained such nuisance, and is a substantial contributor to such nuisance.

288. Defendants knew it was substantially certain that their acts and omissions described above would cause injury and damage, including PFOA and PFOS contamination to Plaintiff. Defendants committed each of the above-described acts and omissions knowingly, willfully, and with oppression, fraud, and/or malice. Such conduct was performed to promote sales of AFFF/Component Products, in conscious disregard to the probable dangerous consequences of that conduct and its reasonably foreseeable impacts on public health and welfare.

289. Each Defendant's AFFF/Component Products are toxic and persist for many years, if not indefinitely.

290. Each Defendant's AFFF/Component Products were used in or transported in the environment to Plaintiff's service area and, whether by direct discharge, air deposition, or surface runoff, ended up in Plaintiff's raw drinking water supply.

291. Each Defendant's AFFF/Component Products proximately caused Plaintiff's injuries because each caused contamination of Plaintiff's surface and/or groundwater supplies and treatment residuals.

292. As part of discovery, Plaintiff will be able to further identify the specific suppliers and manufacturers of PFAS by tracing the chemicals contained in products manufactured by Defendants which were used in or transported in the environment to Plaintiff's airshed and watershed and which entered Plaintiff's water sources and drinking water supply.

293. As a direct and proximate result of Defendants' acts and omissions as alleged herein, Plaintiff has and will incur damages related to, for example, PFOA and PFOS contamination in an amount to be proved at trial.

294. Therefore, Plaintiff requests an Order providing for abatement and remediation of the private nuisance that Defendants have created, and enjoining Defendants from future violations.

295. Plaintiff also requests an award of punitive damages in an amount sufficient to punish these Defendants and that fairly reflects the aggravating circumstances alleged herein.

296. Defendants are jointly and severally liable for all such damages, and Plaintiff is entitled to recover all such damages and other relief as set forth below.

**COUNT VI**  
**TRESPASS**  
(Against All Defendants)

297. Plaintiff adopts, realleges, and incorporates the allegations in paragraphs 1 through 229 above, and further alleges the following:

298. Plaintiff is the owner, operator, and/or actual possessor of real property and improvements used for collecting, storing, distributing, and reusing drinking water.

299. Defendants designed, manufactured, distributed, marketed, and sold AFFF/Component Products with the actual knowledge and/or substantial certainty that they would, through normal use, release PFAS that would migrate into surface and groundwater, and end up in drinking water supplies and treatment residuals, causing contamination.

300. Defendants negligently, recklessly, and/or intentionally designed, manufactured, distributed, marketed, and sold AFFF/Component Products in a manner that caused PFAS contamination to Plaintiff.



301. Each Defendant's AFFF/Component Products are toxic and persist for many years, if not indefinitely.

302. Each Defendant's AFFF/Component Products were used in or transported in the environment to Plaintiff's service area and, whether by direct discharge, air deposition, or surface runoff, ended up in Plaintiff's raw drinking water supply.

303. Each Defendant's AFFF/Component Products proximately caused Plaintiff's injuries because each caused contamination of Plaintiff's surface and/or groundwater supplies and treatment residuals.

304. As part of discovery, Plaintiff will be able to further identify the specific suppliers and manufacturers of PFAS by tracing the chemicals contained in products manufactured by Defendants which were used in or transported in the environment to Plaintiff's airshed and watershed and which entered Plaintiff's water sources and drinking water supply.

305. As a direct and proximate result of Defendants' trespass, Plaintiff has suffered and continues to suffer property damage requiring investigation, assessment, modification, remediation, and monitoring costs.

306. Defendants knew that it was substantially certain that their acts and omissions described above would threaten public health and cause extensive contamination of property, including PWSs, and surface and/or groundwater supplies collected for drinking, as well as treatment residuals. Defendants committed each of the above-described acts and omissions knowingly, willfully, and/or with fraud, oppression, or malice, and with conscious and/or reckless disregard for the health and safety of others, and for Plaintiff's property rights.

### **PRAYER FOR RELIEF**

Wherefore, Plaintiff demands judgment against Defendants, and each of them, jointly and severally, and requests the following relief from the Court:

(a) an Order that Defendants acted with negligence, gross negligence, and/or willful, wanton, and careless disregard for the health and safety of Plaintiff;

(b) an Order that Defendants' conduct alleged herein constitutes a public nuisance;

(c) compensatory damages for past, present, and future damages, according to proof including, but not limited to:

(i) costs and expenses related to investigation, sampling, testing, assessment, and reporting of the extent of PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(d) costs and expenses associated with managing water treatment plant residuals contaminated with PFAS chemicals;

(e) costs and expenses related to monitoring systems and programs to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(i) costs and expenses related to installation and maintenance of filtration systems to assess and evaluate PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(ii) treatment and remediation costs for PFAS contaminated PWSs, including Plaintiff's property and surface and/or groundwater supplies, as well as treatment plant residuals resulting from AFFF/Component Products;

(iii) additional costs relating to infrastructure modifications and/or upgrades, including, but not limited to, design, construction, operation, and maintenance of systems related to PFAS contamination to Plaintiff resulting from AFFF/Component Products;

(iv) costs and expenses associated with obtaining new, less desirable, or harder to treat water sources stemming from PFAS contamination to Plaintiff resulting from AFFF/Component Products; and

(v) costs and expenses associated with modifying the use of existing water supply sources to minimize PFAS levels in finished drinking water and treatment plant residuals.

(f) equitable or injunctive relief based on the imminent and substantial endangerment to Plaintiff;

(g) an Order finding that Defendants are jointly and severally liable;

(h) an Order requiring Defendants to abate the public nuisance described herein;

(i) an Order for an award of attorneys' fees and costs, as provided by law;

(j) pre-judgment and post-judgment interest as provided by law;

(k) an award of punitive damages in an amount sufficient to deter Defendants' similar wrongful conduct in the future; and

(l) an Order for all such other relief the Court deems just and proper.

### **DEMAND FOR JURY TRIAL**

Plaintiff, City of Graham demands a trial by jury of all issues so triable as a matter of right.

Respectfully submitted,

DATED: April 11, 2024

AQUALAW PLC  
F. PAUL CALAMITA

*/s/ F. Paul Calamita*  
F. PAUL CALAMITA

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6 South 5th Street  
Richmond, VA 23219  
Telephone: 804/716-9021  
804/716-9022 (fax)  
paul@aqualaw.com

ROBBINS GELLER RUDMAN  
& DOWD LLP  
MARK J. DEARMAN  
DOROTHY P. ANTULLIS  
NICOLLE B. BRITO  
225 NE Mizner Boulevard, Suite 720  
Boca Raton, FL 33432  
Telephone: 561/750-3000  
561/750-3364 (fax)  
mdearman@rgrdlaw.com  
dantullis@rgrdlaw.com  
nbrito@rgrdlaw.com

Attorneys for Plaintiff